UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/810,998 | 03/26/2004 | Ling Su | 16055US01 | 8997 |

7590 02/24/2009

CHRISTOPHER C. WINSLADE
MCANDREWS, HELD & MALLOY, LTD.
34th Floor
500 West Madison St.
Chicago, IL 60661

| EXAMINER | |
|---|---|
| SAMS, MATTHEW C | |
| ART UNIT | PAPER NUMBER |
| 2617 | |
| MAIL DATE | DELIVERY MODE |
| 02/24/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/810,998 | SU ET AL. | |
| | Examiner | Art Unit | |
| | MATTHEW SAMS | 2617 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *42-71* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *42-71* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

1. This office action is in response to the arguments filed on 1/12/2009.

2. No amendments were filed.

### *Response to Arguments*

3. Applicant's arguments filed 1/12/2009 have been fully considered but they are not persuasive.

4. In response to the applicant's argument regarding claims 42 and 57 *that the combination of Lane and Liang does not disclose or suggest at least the limitation of "generating two or more priority signals to control prioritization of information between corresponding MAC interfaces for each of said plurality wireless transmitter and/or receiver devices within said chip"*, the examiner respectfully disagrees.

Lane teaches "The MACs ensure that the physical medium (e.g., the 2.4 Ghz frequency band) is shared in a fair, consistent and efficient manner" (Col. 4 lines 42-44), "the MAC controls the contention process and resolves any collisions that may occur" (Col. 4 lines 46-47), "The 802.11 MAC 170 transmits information to the BT MAC 130 regarding the priority of 802.11 events" and " the BT MAC 130 transmits a transmit disable command to the 802.11 radio 160 whenever the BT MAC 130 needs to process a high-priority BT receive or transmit event". (Col. 5 lines 16-23) Therefore, since Lane teaches the MACs ensure that the 2.4 GHz frequency is shared and that any collisions that occur are resolved, it is obvious to one of ordinary skill in the art to recognize that

the transmission of the priority of 802.11 events from an 802.11 MAC to a BT MAC and the transmission of a high-priority BT receive or transmit event from a BT MAC to an 802.11 MAC constitute the "generating of two or more priority signals to control prioritization of information between corresponding MAC interfaces".

Further, Lane teaches in Figs. 3-6 of a novel antenna switching apparatus that ensures electrical isolation of the BT device when the 802.11 device is transmitting. (Fig. 8 [720']) Therefore, it is obvious to one of ordinary skill in the art that the transmission of the priority of 802.11 events from the 802.11 MAC to the BT MAC (Col. 4 lines 64-66 and Col. 5 lines 16-17) is not only controlling the prioritization of information between the MAC interfaces to prevent saturation of the Bluetooth devices (Lane Col. 3 lines 6-8), but also ensuring no physical damage occurs to the Bluetooth device. (Lane Col. 2 lines 59-61)

5. In response to the applicant's arguments regarding the dependent claims, the applicant's arguments are based on the alleged deficiency of claims 42 and 57, responded to above. Therefore, the rejection is maintained in view of the further explanation above.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 42, 43, 45, 47-53, 55-58, 60, 62-68, 70 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lane et al. (US-6,978,121 hereinafter, Lane) in view of Liang et al. (US-2004/0029619 hereinafter, Liang).

Regarding claim 42, Lane teaches a method of communication, the method comprising:

a plurality of wireless transmitter and/or receiver devices, (Fig. 2 [220 & 260])

generating two or more priority signals (Col. 5 lines 16-23 "The 802.11 MAC 170 transmits information to the BT MAC 130 regarding the priority of 802.11 events" &" the BT MAC 130 transmits a transmit disable command to the 802.11 radio 160 whenever the BT MAC 130 needs to process a high-priority BT receive or transmit event") to control prioritization of information between corresponding MAC interfaces for each of said plurality wireless transmitter and/or receiver devices; (Col. 4 lines 39-52) and

coordinating communication of information between two or more of said plurality of wireless transmitter and/or receiver devices by configuring one or more of said corresponding MAC interface devices via said generated two or more priority control signals. (Col. 4 line 39 through Col. 5 line 51, specifically Col. 4 lines 39-52)

Lane differs from the claimed invention by not explicitly reciting the plurality of wireless transmitter and/or receiver devices are in a chip.

In an analogous art, Liang teaches a method and system for coexistence of wireless communication technologies that includes a chip comprising a plurality of wireless transmitter and/or receiver devices. (Page 2 [0021], Fig. 1 [104 & 106] & Pages 2-3 [0022] "Although depicted as separate functional instances, the constituent

elements of system 100 may be integrated or combined as necessary or convenient for design purposes") At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the method of operating a dual mode device of Lane after modifying it to incorporate the ability to implement the system into an integrated design. One of ordinary skill in the art would have been motivated to do this since it enables a convenient and compact design for integration into devices without taking up an inordinate amount of space.

Regarding claim 43, Lane in view of Liang teaches controlling throughput of one or more of said plurality of wireless transmitter and/or receiver via said configuration of said one or more corresponding MAC interface devices. (Lane Col. 4 line 39 through Col. 5 line 26 *i.e.* the means for transmitting or receiving using the 802.11 interface and Bluetooth interface is controlled by the medium access control components)

Regarding claim 45, Lane in view of Liang teaches controlling connection time of one or more of said plurality of wireless transmitter and/or receiver via said configuration of said one or more of said corresponding MAC interface devices. (Liang [0024] "dynamic balancing based on activity in a given time period" and [0037])

Regarding claim 47, Lane in view of Liang teaches configuring one or more of said corresponding MAC interface devices (Lane Fig. 2 [230 & 270]) via said generated one or more priority control signals via a host system. (Lane Col. 5 lines 16-23)

Regarding claim 48, Lane in view of Liang teaches coordinating said communication of information based on user input. (Liang Page 1 [0006])

Regarding claim 49, Lane in view of Liang teaches coordinating said communication of information based on detection of an active application. (Liang [0004] "user interface functions" and [0020] "Arbitration is provided on a packet-by-packet basis, according to a predetermined scheme of assumptions and priorities based on the end-use application")

Regarding claim 50, Lane in view of Liang teaches coordinating said communication information based on a protocol specific command. (Liang [0024] "in a number of embodiments, voice transmission and reception over Bluetooth is given priority over all other data traffic")

Regarding claim 51, Lane in view of Liang teaches assigning first and second priority control signals selected from said two or more priority control signals (Lane Col. 5 lines 16-23 and Liang [0024]), to first and second wireless transmitter and/or receiver devices selected from said plurality of wireless transmitter and/or receiver devices. (Lane Col. 4 lines 39-52 and Liang [0024])

Regarding claim 52, Lane in view of Liang teaches receiving or transmitting data on said first of said plurality of wireless transmitter and/or receiver devices (Lane Col. 4 line 64 through Col. 5 lines 23 and Liang [0024]) in accordance with the relative priority of said first priority control signal to said second priority control signal. (Lane Col. 4 line 64 through Col. 5 lines 23 and Col. 5 lines Liang [0027])

Regarding claim 53, Lane in view of Liang teaches said first of said plurality of wireless transmitter and/or receiver devices comprises a WLAN wireless interface device (Lane Fig. 2 [260] and Liang Fig. 1 [104]), and wherein said second of said

plurality of wireless transmitter and/or receiver devices comprises a Bluetooth wireless interface device. (Lane Fig. 2 [220] and Liang Fig. 1 [106])

Regarding claim 55, Lane in view of Liang teaches said first of said plurality of wireless transmitter and/or receiver devices is compliant with Bluetooth (Lane Fig. 2 [220] and Liang Fig. 1 [106]), and wherein said second of said plurality of wireless transmitter and/or receiver devices is compliant with IEEE 802.11(b) or IEEE 802.11(g). (Lane Col. 1 line 52 through Col. 2 line 14 and Liang [0017-0018])

Regarding claim 56, Lane in view of Liang teaches said first priority control signal comprises a user-specified priority indication for said first of said plurality of wireless transmitter and/or receiver devices (Liang [0006] "end-user arbitration"), such that said first of said plurality of wireless transmitter and/or receiver devices is given priority in the reception or transmission of data relative to said first of said plurality of wireless transmitter and/or receiver devices. (Liang [0006])

Regarding claim 57, the limitations of claim 57 are rejected as being the same reason set forth above in claim 42.

Regarding claim 58, the limitations of claim 58 are rejected as being the same reason set forth above in claim 43.

Regarding claim 60, the limitations of claim 60 are rejected as being the same reason set forth above in claim 45.

Regarding claim 62, the limitations of claim 62 are rejected as being the same reason set forth above in claim 47.

Regarding claim 63, the limitations of claim 63 are rejected as being the same reason set forth above in claim 48.

Regarding claim 64, the limitations of claim 64 are rejected as being the same reason set forth above in claim 49.

Regarding claim 65, the limitations of claim 65 are rejected as being the same reason set forth above in claim 50.

Regarding claim 66, the limitations of claim 66 are rejected as being the same reason set forth above in claim 51.

Regarding claim 67, the limitations of claim 67 are rejected as being the same reason set forth above in claim 52.

Regarding claim 68, the limitations of claim 68 are rejected as being the same reason set forth above in claim 53.

Regarding claim 70, the limitations of claim 70 are rejected as being the same reason set forth above in claim 55.

Regarding claim 71, the limitations of claim 71 are rejected as being the same reason set forth above in claim 56.

8. Claims 44 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lane in view of Liang as applied to claims 42 and 57 above, and further in view of Shpak (US-6,799,054).

Regarding claim 44, Lane in view of Liang teaches the limitations of claim 42 above, but differs from the claimed invention by not explicitly reciting controlling latency

associated with said communication of information via said configuration of said one or more of said corresponding MAC interface devices.

In an analogous art, Shpak teaches a method and system for collaboration between wireless access points that includes the ability convey data through a single device via two different media access control (MAC) protocols, wherein the first MAC protocol has a latency that is higher than the second MAC protocol and can be preempted in order to meet the second lower latency of the second MAC protocol. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to be motivated to implement the wireless system coexistence of Lane in view of Liang after modifying it to incorporate the ability to control latency of Shpak since controlling latency ensures the differing quality of service requirements are met for the different MAC protocols.

Regarding claim 59, the limitations of claim 59 are rejected as being the same reason set forth above in claim 44.

9. Claims 46 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lane in view of Liang as applied to claims 42 and 57 above, and further in view of Unruh (US-2003/0161288).

Regarding claim 46, Lane in view of Liang teaches the limitations of claim 42 above, but differs from the claimed invention by not explicitly reciting configuring one or more of said corresponding MAC interface devices via said generated one or more priority control signals via a wireless signal.

In an analogous art, Unruh teaches a system and method for communicating over multiple different protocols (Abstract) that includes the ability to be configured over-the-air in order to update the configuration of the mobile communication device. (Page 7 [0065]) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the wireless system coexistence of Lane in view of Liang after modifying it to incorporate the over-the-air updating of a mobile device of Unruh. One of ordinary skill in the art would have been motivated to do this since it provides greater flexibility by enabling a device to be updated remotely whenever required.

Regarding claim 61, the limitations of claim 61 are rejected as being the same reason set forth above in claim 46.

10. Claims 54 & 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lane in view of Liang as applied to claims 42 and 57 above, and further in view of Michaelis et al. (US 2004/0009751 hereinafter, Michaelis).

Regarding claim 54, Lane in view of Liang teaches one wireless transceiver circuit comprises a Bluetooth wireless interface device, but differs from the claimed invention by not explicitly reciting the second wireless transceiver circuit comprises a second Bluetooth wireless interface device.

In an analogous art, Michaelis teaches a dual-mode wireless device (Fig. 2) that includes two Bluetooth personal area network interfaces. (Page 2 [0018-0020]) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the invention of Lane in view of Liang after modifying it to incorporate

two Bluetooth wireless interface devices of Michaelis. One of ordinary skill in the art would have been motivated to do this since Bluetooth has a limitation upon the number of concurrent communications that can occur and having two interfaces doubles the possible number of connections.

Regarding claim 69, the limitations of claim 69 are rejected as being the same reasons set forth above in claim 54.

***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW SAMS whose telephone number is (571)272-8099. The examiner can normally be reached on M-F 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MCS
2/18/2009

/Lester Kincaid/
Supervisory Patent Examiner, Art Unit 2617